



**IRTA**

*Institute for Research and Technical Assistance*

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**DTSC**

Department of Toxic Substances Control

## **Alternatives to Copper Antifouling Paints for Pleasure Craft**

Copper antifouling paints are commonly used to protect boat hulls from excessive foul-ing attachment which can slow the vessel and reduce maneuverability. Copper has built up to toxic levels in many of the Basins and marinas in California because of the concentration of pleasure craft in these areas. Over the last several years, alternatives to copper hull paints have emerged and they are being used by boaters to some extent. This fact sheet describes the alternative non-biocide paints that have been tested in the last few years and discusses the costs of using them in place of copper paints.



## What Are the Alternatives to Copper Hull Paints?

There are a variety of copper paint alternatives offered by suppliers today. These include alternative biocide paints that are based on zinc pyri-thione, a zinc biocide, and/or Econeal, an organic biocide. Zinc oxide only paints, based on zinc, are also available. Nonbiocide paint alternatives, classified as soft nonbiocide paints, which are based on silicon and often fluoropolymers, and hard nonbiocide paints, which are based on epoxy and sometimes ceramic, are also available. Much of the testing work on alternatives has been performed in Southern California so the results available to date reflect the fouling characteristics and hull cleaning practices in that area.



## What Are the Costs of Using the Alternative Paints?

Copper paints generally last two or three years before repainting is necessary. Alternative biocide and zinc oxide only paints have shorter lives. Since the paints themselves are more costly and they have the same hull cleaning schedule as copper paints, these alternatives are more costly to use over the life of the paint than copper paints.

Nonbiocide paints generally have a much longer life than copper paints and some have been on boats for six to 10 years. Because the paints are more expensive and they require more expensive application methods, the paint job costs for these paints are higher. The hull cleaning schedule for the soft nonbiocide paints is the same as



the cleaning schedule for copper paints but the hard nonbiocide paints must be cleaned more often than copper paints in the summer. The cost of using the soft nonbiocide paints over the life of the paint is roughly equivalent to the cost of using a copper paint over the life of the paint; the higher paint job cost is offset by the longer life of the paint. The cost of using the hard nonbiocide paints over the life of the paint is somewhat higher than the cost of using a copper paint over the life of the paint because these alternative paints need to be cleaned more frequently.





## Should I Try a Nonbiocide Paint on My Boat?

From an overall health and environmental standpoint, the best alternatives are the nonbiocide paints. Soft nonbiocide paints have been tested in two projects sponsored by EPA over the last several years. In one project, the Institute for Research and Technical Assistance (IRTA), a non-profit technical organization, partnered with the Port of San Diego to test all types of alternative paints. The report, entitled “Safer Alternatives to Copper Antifouling Paints for Marine Vessels” can be accessed on IRTA’s website at [www.irta.us](http://www.irta.us). In the second project, IRTA partnered with Cal/EPA’s Department of Toxic Substances Control (DTSC) to exclusively test and find less costly methods of applying nonbiocide alternative paints. The project report, entitled “Safer Alternatives to Copper Antifouling Paints: Nonbiocide Paint Options” can also be accessed on IRTA’s website.

In the Port/IRTA project, two of the best performing paints were soft nonbiocide paints called Hempasil X3 and Intersleek 900. In the DTSC/IRTA project, these paints and additional emerging paints were tested on boats and/or panels. The additional emerging paints that performed well in the DTSC/IRTA project included Hempasil XA 278, BottomSpeed, XP-A101 and Sher-Release. In many cases, the paints were applied to the boats using less expensive methods which should help in reducing the cost of the paint jobs.



Boaters who are interested in testing or using alternative nonbiocide paints can contact Katy Wolf at IRTA at (323) 656-1121.

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